

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 12-29 are pending in the application. Claims 13-16 and 18-20 have been withdrawn by the Examiner, Claims 2-6 and 8-11 have been canceled, Claims 12-16 and 18-20 have been amended and new Claims 21-29 have been added by the present amendment.

In the outstanding Office Action, Claims 12 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by Johnson et al. (U.S. Patent 5,417,056, herein "Johnson"); Claims 12 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by Vdoviak et al. (U.S. Patent 4,833,881, herein "Vdoviak"); Claims 12 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by Cowan et al. (U.S. Patent 4,199,936, herein "Cowan"); Claims 12 and 17 were rejected under 35 U.S.C. § 102(e) as anticipated by Sattinger et al. (U.S. Patent 6,530,221, herein "Sattinger"); Claim 17 was rejected under 35 U.S.C. § 102(b) as anticipated by EP 0576717 (herein "EP '717"); Claims 12 and 17 were rejected under 35 U.S.C. § 102(b) as anticipated by GB 2309296 (herein "GB '296"); Claims 12 and 17 were rejected under 35 U.S.C. § 102(e) as anticipated by JP 2001-90939 (herein "JP '939"); Claims 12 and 17 were rejected under 35 U.S.C. § 103(a) as unpatentable over any of Johnson, Vdoviak, Cowan, Sattinger, EP 0971172 (herein "EP '172") or GB '296 and further in view of Napoli (U.S. Patent 5,279,127); and Claims 12 and 17 were rejected under 35 U.S.C. § 103(a) as unpatentable over EP '172 in view of Vdoviak or Johnson.

Amended Claim 12 finds support at page 12, lines 33-34, and page 13, line 33, though page 14, line 1. Further, Claims 13-16 and 18-20 have been amended to depend on Claim 12

and for clarification. Furthermore, withdrawn Claims 8-11 have been canceled and new Claims 21-24 that depend on Claim 12 have been added. Claims 21-24 correspond to Claims 8-11, respectively. No new matter is added thereby. Applicants respectfully request Claims 2-6 and 8-11 be canceled without prejudice or disclaimer.

Claims 12 and 17 stand rejected under 35 U.S.C. § 102(b) as anticipated by Johnson. Applicants respectfully request the withdrawal of this rejection.

Amended Claim 12 of the present application is directed to a gas turbine combustor that includes a combustor wall that absorbs acoustic energy of a combustion variation. The combustor wall includes a perforated plate and a back plate. The back plate is disposed outside the perforated plate in a radial direction and spaced apart from the perforated plate by a gap. The perforated plate also has openings which are positioned such that a distance  $L1$  between the openings in a longitudinal direction and a distance  $L2$  between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ . Also, positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction.

In a non-limiting example, Figure 13A shows such offsetting position of the openings.

Johnson describes a screech suppressor liner 49 with screech suppressor holes 200, (see column 6, lines 15-17, and Figures 6 and 7). Johnson also describes that the screech suppressor liner 49 has structural stiffening rings 174 to prevent buckling and resist thermal distortion from hot streaks (see column 5, lines 65-67, and Figures 6 and 7). The screech suppressor of Johnson is not a wall of a combustor. But rather the combustor of Johnson is identified by reference numeral 22. Accordingly, Johnson does not disclose or suggest a

combustor wall that absorbs acoustic energy of a combustion variation, as expressly recited in Claim 12 of the present application. This distinction is a fundamental and major difference between the present invention and the teachings in Johnson. Accordingly, Applicants respectfully submit that Johnson does not anticipate Claim 12 or the claims that depend therefrom.

Claims 12 and 17 stand rejected under 35 U.S.C. § 102(b) as anticipated by Vdoviak. Applicants respectfully request the withdrawal of this rejection.

Vdoviak describes an augmentor 12 that includes an annular afterburner cooling liner 40 that has a radially inner surface 42 and a radially outer surface 44 (see column 3, lines 50-53, and Figure 2). Further, Vdoviak describes a manifold 96 with apertures 92 (see column 5, lines 30-32, and Figure 4) and alternatively, Vdoviak describes manifolds 96a with apertures 92a in Figure 5. Although Figures 4 and 5 of Vdoviak show patterns of apertures, Vdoviak does not specifically disclose or suggest a relationship such as distance between the apertures or exact scales of Figures 4 and 5. Therefore, it is difficult to determine whether "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application is disclosed by Vdoviak. Applicants respectfully submit that the above claimed relationship does not *necessarily* flow from the teaching of Vdoviak (see M.P.E.P. § 2112).

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over Vdoviak.

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Claims 12 and 17 stand rejected under 35 U.S.C. § 102(b) as anticipated by Cowen.

Applicants respectfully request the withdrawal of this rejection.

Cowen describes a combustor that includes a can-like or cylindrically shaped burner cavity 21 formed by an inner combustor wall 23 (see column 4, lines 39-54, and Figure 2). The burner cavity 21 is enclosed by an outer combustor wall 22. Also, Cowen describes that a plurality of burner cavities 21 are mounted at predetermined positions around an annular airflow duct 24 formed by the outer combustor wall 22. Although Figures 2-5 of Cowen show holes 27, 28, 41, 51, Cowen does not specifically disclose or suggest a relationship such as distance between the holes or exact scales of Figures 2-5. Therefore, it is difficult to determine whether "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application is disclosed by Cowen. Applicants respectfully submit that the above claimed relationship does not *necessarily* flow from the teaching of Cowen (see M.P.E.P. § 2112).

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over Cowen.

Claims 12 and 17 stand rejected under 35 U.S.C. § 102(e) as anticipated by Sattinger. Applicants respectfully request the withdrawal of this rejection.

Sattinger describes a transition section 30 that includes a housing 70 (see column 3, lines 22-32, and Figure 1). Sattinger also describes a modular resonator 50 that includes a first member 52 that has openings 54, a second member 56 and a sidewall 58 (column 3, line

65 to, column 4, line 22, and Figure 2). Although Figures 5A-B of Sattinger show patterns of openings 54, 57, Sattinger does not specifically disclose or suggest a relationship such as distance between the openings or exact scales of Figures 5A-B. Therefore, it is difficult to determine whether "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application is disclosed by Sattinger. Applicants respectfully submit that the above claimed relationship does not *necessarily* flow from the teaching of Sattinger (see M.P.E.P. § 2112). Further, as clearly shown in Figures 5A-B of Sattinger, Sattinger does not disclose "... positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction" as recited in amended Claim 12 of the present application. Every row (column) is aligned with the adjacent row (column), and therefore not offset.

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over Sattinger.

Claims 17 stands rejected under 35 U.S.C. § 102(b) as anticipated by EP '717. Applicants respectfully request the withdrawal of this rejection.

EP '717 describes outer wall parts 19 that have inlet openings 20 and inner wall parts 18 that have outlet bores 22 (see abstract and Figure 2). According to Figure 2 of EP '717, it appears that EP '717 does not disclose "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a

distance  $L2$  between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application. It is difficult to determine whether the openings and bores are positioned in the claimed relationship from Figure 2 and the abstract. Moreover, EP '717 does not appear to disclose "... positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction" as recited in amended Claim 12 of the present application from Figure 2 and the abstract.

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over EP '717.

Claims 12 and 17 stand rejected under 35 U.S.C. § 102(b) as anticipated by GB '296. Applicants respectfully request the withdrawal of this rejection.

GB '296 describes a cylindrical combustor can 100 that has a combustor wall 104 (see GB '296, page 3, lines 22-29). GB '296 also describes that the combustor wall 104 includes an inner skin 108 and an outer skin 109 (see GB '296, page 4, lines 1-9, and Figure 1A). Although Figures 1A and 2 of GB '296 show patterns of openings 113, 213, GB '296 does not specifically disclose or suggest a relationship such as distance between the openings or exact scales of Figures 1A and 2. Therefore, it is difficult to determine whether "... the perforated plate has openings which are positioned such that a distance  $L1$  between the openings in a longitudinal direction and a distance  $L2$  between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application is disclosed by GB '296. Applicants respectfully submit that the claimed relationship does not *necessarily* flow from the teaching of GB '296 (see

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M.P.E.P. § 2112). Further, as clearly shown in Figures 1A and 2 of GB '296, GB '296 does not disclose "... positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction" as recited in amended Claim 12 of the present application. Every row (column) is aligned with the adjacent row (column), and therefore not offset.

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over GB '296.

Claims 12 and 17 stand rejected under 35 U.S.C. § 102(e) as anticipated by JP '939. Applicants respectfully request the withdrawal of this rejection.

JP '939 discloses a thin flat sheet 10 that is attached to the inner wall of a casing 100 (see abstract and Figure 1). The thin flat sheet 10 resonates with a vibration of air. According to Figure 1 of JP '939, it appears that JP '939 does not disclose "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$  and positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction" as recited in amended Claim 12 of the present application.

Accordingly, it is respectfully submitted that independent Claim 12 and dependent Claim 17 define over JP '939.

Claims 12 and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over any one of Johnson, Vdoviak, Cowan, Sattinger, EP '172 or GB '296 in view of Napoli.

Applicants respectfully request the withdrawal of this rejection.

As discussed above, none of Vdoviak, Cowan, Sattinger and GB '296 discloses or suggests "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application.

EP '172 describes inner walls (12, 17) that have openings (27) (see abstract). According to Figure 2 of EP '172, it appears that EP '172 does not disclose "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$  and positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions of the openings in every other row are aligned in the longitudinal direction" as recited in amended Claim 12 of the present application.

Further, Napoli describes a combustor assembly 38 that includes inner combustor liners 48 and 50 (see column 4, lines 23-32, and Figure 2). Although Figure 5 of Napoli shows a pattern of holes 80 and Napoli describes that the holes are spaced about 130 mils (0.15 inches) off center from each other (even spacings) (see column 5, lines 55-60), it appears that Napoli does not specifically disclose or suggest "... positions of the openings adjacently arrayed in a row in the circumferential direction are offset such that the positions



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of the openings in every other row are aligned in the longitudinal direction” as recited in amended Claim 12 of the present application. Applicants respectfully submit that the above claimed relationship does not *necessarily* flow from the teaching of Napoli (see M.P.E.P. § 2112).

Because none of Vdoviak, Cowan, Sattinger, EP ‘172 or GB ‘296 and Napoli discloses the combustor wall as recited in amended Claim 12 of the present application, even the combined teachings of these cited references would not in any way render the structure recited in amended Claim 12 of the present application obvious.

Regarding the combination of the teachings of Napoli with the teachings of Johnson, the Applicants submit that one of skill in the art would not have been motivated to make such a combination due to the teachings in Johnson that the structure described therein was specifically designed as a screech suppressor liner and not for use in the combustor. Note also that Napoli describes the use of a combustor liner in the combustor that is very different from the after burner liner 28 in the exhaust section 22, and does not suggest that such features can be interchanged. Thus, neither reference teaches that a screech suppressor liner, such as that described in Johnson, can be combined with the teachings of a combustor liner, such as that described in Napoli.

Accordingly, it is respectfully requested that the above obviousness rejection be withdrawn.

Claims 12 and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over EP ‘172 in view of either Johnson or Vdoviak. Applicants respectfully request the withdrawal of this rejection.

As discussed above, neither EP '172 nor Vdoviak discloses "... the perforated plate has openings which are positioned such that a distance L1 between the openings in a longitudinal direction and a distance L2 between the openings in a circumferential direction have a relationship of  $0.25 \leq L1 / L2 \leq 4$ " as recited in amended Claim 12 of the present application. Because neither EP '172 nor Vdoviak discloses the combustor wall as recited in amended Claim 12 of the present application, even the combined teachings of these cited references would not in any way render the structure recited in amended Claim 12 of the present application obvious.

Regarding the combination of the teachings of EP '172 with the teachings of Johnson, the Applicants submit that one of skill in the art would not have been motivated to make such a combination due to the teachings in Johnson that the structure described therein was specifically designed as a screech suppressor liner and not for use in the combustor. Neither reference teaches that a screech suppressor liner, such as that described in Johnson, can be combined with the teachings of walls of a combustor zone, such as that described in EP '172.

Accordingly, it is respectfully requested that the above obviousness rejection also be withdrawn.

Newly added Claims 25-29 are considered allowable as they recite features of the invention that are neither disclosed nor suggested by the references of record. For example, the cited references do not disclose or suggest a gas turbine combustor comprising a combustor wall configured to absorb acoustic energy of a combustion variation, where the combustor wall includes a first perforated plate, a second perforated plate, and a back plate, and where the second perforated plate has cooling pipes embedded therein that are configured

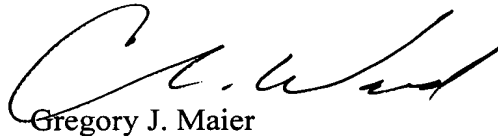
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to receive cooling fluid, as recited in independent Claim 25. Support for new Claims 25-29 can be found in Figures 12, 13A, and 13B, and the corresponding portions of the specification. The Applicants submit that new Claims 25-29 read on elected Species X (Figures 12 and 13).

In view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully Submitted,

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